SOV/138-58-12-4/17

AUTHORS: Zakharov, N. D. and Shiryayev, B. A.

TITLE: Vulcanisation of Some Synthetic Rubbers Without Sulphur (Nesernaya vulkanizatsiya nekotorykh sinteticheskikh kauchukov). First Communication. Thermo-Vulcanisation of Butadiene-Styrene Rubbers. (Soobshcheniye 1. Termo-vulkanizatsiya butadiyen-stirol'nykh kauchukov)

PERIODICAL: Kauchuk i Rezina, 1958, Nr 12, pp 11 - 15 (USSR)

ABSTRACT: B. A. Dogadkin et al. (Ref. 1) found that carbon black-containing mixtures of SKB, SKS-30 show the typical effect of vulcanisation when heated at 180 - 200°C. Experiments were carried out on the thermo-vulcanisation of various types of nitrile rubbers, and also on the effect of some additives and conditions on the process of vulcanisation and on the properties of the rubbers. The rubbers SKN-40, SKN-26 and SKN-18 containing 36.24, 26.98, 19.10% acrylonitrile respectively were tested. These were vulcanised at 143, 153, 163, 173, 183 and 193°C for 20, 40, 60 and 120 minutes. Figs. 1, 2 and 3 show that there is practically no thermo-vulcanisation of SKN-18 and SKN-26 at 143°C, but thermo-vulcanisates are obtained from SKN-40 when heated from 60 to 120 minutes. On increasing the temperature to 193°C the modulus and the

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strength increase continuously, but the relative and residual elongation decrease. No improvement in the properties were observed when heating to 193°C. Curves showing the dependence of the properties of the vulcanisates on the time of vulcanisation change in character (Figs. 4 and 5). The temperature at which thermo-vulcanisation proceeds at sufficiently fast rate, and the properties of the vulcanisates, depend on the type of the rubber, i.e. on the content of nitrile groups in the rubber. This rate increases on increasing the temperature in the same way as during vulcanisation with sulphur. Table 1 shows some characteristics of the thermo-vulcanisates which have the highest degree of strength. Similar results were obtained during the thermo-vulcanisation of rubber mixtures which did not contain fillers. Thermo-vulcanisation can also be observed in rubbers containing other fillers. SKN-26 mixture, containing kaolin, was vulcanised for 60 minutes at 196°C, and the thermo-vulcanisate showed strength of 58 kg/cm² and 22.2 kg/cm² modulus at 300% elongation. Comparative tests were carried out with sulphur-vulcanisates

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SOV/138-58-12-4/17

Vulcanisation of Some Synthetic Rubbers Without Sulphur

of nitrile rubbers prepared from standard mixtures which were vulcanised for 40 minutes at 143°C. Samples of thermo-vulcanisates containing fillers were also prepared; these were vulcanised for 60 minutes at 183°C (Table 2). Thermo-vulcanisates were shown to have poorer properties than the sulphur vulcanisates with respect to their strength and relative elongation, and also in their resistance to ageing. They are of soft consistency and less thermo-stable. The intermolecular bonds are of greater importance in these vulcanisates than in sulphur vulcanisates. Tests were carried out on comparing the degree of ageing of the two types of rubber vulcanisates at 120°C for 72 hours. Their frost resistance and brittleness were also investigated, and it was found that thermo-vulcanisates are more frost-resistant than sulphur vulcanisates. Metal oxides, when used as additives, increase the rate of vulcanisation and improve the physico-mechanical characteristics of thermo-vulcanisates (Fig.6). Acidic substances (such as concentrated sulphuric acid) and metal chlorides (such as $ZnCl_2$, $AlCl_3$ and $FeCl_3$) also influence

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SOV/138-58-12-4/17

Vulcanisation of Some Synthetic Rubbers Without Sulphur

the vulcanisation process. When using the latter substance vulcanisation occurs at 143°C. There are 6 Figures, 2 Tables and 3 References: 1 English and 2 Soviet.

ASSOCIATION: Yaroslavskiy tekhnologicheskiy institut i shinnyy zavod (Yaroslavl' Institute of Technology and the Tyre Plant)

Card 4/4

SHIRYAYEV, B.I.

Grid-control system of the Kashira-Moscow d.c. power line.
Izv.NIIPT no.3:181-196 '58. (MIRA 12:1)
(Electric power distribution--Direct current)

SHIRYAYEV,B.M., inzhener

Universal attachment for connecting MB or BB apparatuses to standard tsb hand operated stations. Nauch.rab. VUGI no.11: 142-152 '54. (MIRA 8:11)
(Mine communication)

FURMANOV, Boris Moiseyevich; SHIRYAYEV, Boris Mikhaylovich; FOMIN, G.M. redaktor; NADEINSKAYA, A.A., tekhnicheskiy redaktor.

[Mine telephone system] Shakhtnaia telefonnaia sviaz'. Moskva, Ugletekhizdat, 1955. 151 p. (MLRA 8:9)
(Mine communication)

GURIN, Nikolay Yefimovich; MIKHEYEV, Yuriy Aleksandrovich; SHIRYAYEV,
Boris Mikhaylovich; SHISHKIN, Nikolay Fedorovich; ZAPRBYEVA,
K.A., redaktor; KOROVENKOVA, Z.L., tekhnicheskiy redaktor.

[Electrical engineering in mining] Gornaia elektrotekhnika.
Moskva, Ugletekhizdat, 1955. 506 p. (MLRA 9:5)
(Electricity in mining)

[illegible], B.M.; [illegible], [illegible], red.

[Sparkproof TsB telephone system and apparatus for mine communications] Iskrobezopasnaia sistema i apparatura shakhtnoi telefonnoi sviazi TsB. Moskva, Inst. gornogo dela imeni A.A. [illegible], [illegible]. [illegible] p.
(MIRA [illegible])

Shiryayev B. M.

AUTHORS: Protopopov, A. N., Shiryayev, B. M. 56-2-10/51

TITLE: The Study of γ-Rays Emitted in the Fission of U^{235} Induced by 2.8 and 14.7 MeV Neutrons (Issledovaniye γ-luchey soprovozhdayushchikh deleniye U^{235} neytronami s energiyey 2,8 i 14,7 MeV)

PERIODICAL: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1958, Vol 34, Nr 2, pp 331-333 (USSR)

ABSTRACT: By means of a coincidence apparatus the authors investigated the spectrum of γ-quanta which coincide with the fission of U^{235} under the action of fast and thermal neutrons. By means of the comparison of experimentally obtained spectra some conclusions on γ-rays can be drawn occuring parallel with the fission of U^{235} under the action of fast neutrons. A diagram shows the block scheme of the apparatus used for the measurements. The γ-quanta were recorded by means of a scintillation counter with a NaJ(Tl)-crystal and with a spectrometric photomultiplier of the ФЭУ-С type. The fission fragments were recorded by means of a multilayer ionization chamber, which was filled with a mixture of

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The **Study** of γ-Rays Emitted in the Fission of U^{235} 56-2-10/51
Induced by 2.8 and 14.7 MeV Neutrons

argon (95%) and carbonic acid gas (5%) under a pressure of 760 torr. The layers of uranium oxide (with 97,8 % U^{235}) were deposited electrolytically on the electrodes of the chamber. The impulses of the chamber were passed on across a linear amplifier to the coincidence circuit. The neutrons with the energy 2,8 and 14,7 MeV were formed in the reactions $D(d,n)He^3$ and $T(d,n)He^4$ at an energy of the bombarded deuterons of 180 keV. The thermal neutrons were obtained by means of slowing down the fast neutrons by means of a lead layer (10 cm) and paraffine (25 cm). The distributions of the impulses on the amplitudes obtained by these measurements are shown in a diagram. The spectra have the same shape within the range of amplitudes investigated. In the fission of U^{235} by thermal neutrons this range of amplitudes covers about 90% of the total amount and 65-70% of the total amount of momentary quanta. The total energy of the γ-quanta emitted in the fission is proportional to the mean number of the γ-quanta corresponding to one of fission process. Within the experimental accuracy (15%) the total energy of the fission of U^{235} by neutrons with 2,8 and 14,7 MeV-

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The Study of γ-Rays Emitted in the Fission of U^{235} Induced by 2.8 and 14.7 MeV Neutrons 56-2-1o/51

-accompanying γ-quanta is the same as in the fission of U^{235} by thermal neutrons. There are 2 figures and 6 references, 3 of which are Slavic.

ASSOCIATION: Radium Institute AS USSR (Radiyevyy institut Akademii nauk SSSR)

SUBMITTED: August 3o, 1957

AVAILABLE: Library of Congress

1. Ionization chambers-Applications 2. γ -Rays-Study and teaching 3. Scintillation counters-Applications

Card 3/3

Shiryayev, B. M.

[illegible] [illegible]

Akademiya nauk [illegible] Radiyevyy institut

Trudy, t. IX (Transactions of the Radium Institute, Academy of Sciences USSR, Vol. 9) Moscow, Izd-vo AN SSSR, 1959. 287 p. Errata slip inserted. 1,700 copies printed.

Ed.: N.A. Perfilov, Doctor of Physical and Mathematical Sciences; Ed. of Publishing House: G.M. Aron; Tech. Ed.: A.V. Smirnova.

PURPOSE: The volume is intended for physicists.

COVERAGE: The book represents volume 9 of the Transactions of the Radium Institute and contains the results of studies conducted at the Institute chiefly from 1955 to 1956. There are a number of articles dealing with the study of nuclear reactions occurring with particles of different energies ranging from several eV up to hundreds of MeV. Others treat different problems of the physics of neutrons. Results of studies of various neutron sources, neutron energy distribution in a moderator (water), and other problems connected with the theory of neutron interaction with matter are presented. The majority of the articles are concerned with problems of method. The authors provide a complete description of the construction of equipment and of the results of tests performed under laboratory conditions. No personalities are mentioned. References accompany individual articles.

Shamov, V.P. Uranium Fission due to High Excitation Energy 45

Shamov, V.P. Fission of Heavy Nuclei (Z<73) due to High Excitation Energy 5[illegible]

Protopopov, A.N., Yu.A. Selitskiy, and S.M. Solov'yev. Cross Section for Fission of Uranium Bombarded by Fast Neutrons 55

Vasil'yev, Yu.A., and A.N. Pisarevskiy. Study of Gamma Rays of Certain Neutron Sources 61

Nemilov, Yu.A., and A.N. Pisarevskiy. Study of Gamma Ray Spectrum of Po-Be Neutron Source 72

Artem'yev, [illegible], A.N. Protopopov, and B.M. Shiryayev. Study of Gamma Rays Accompanying the Fission of U235 by Thermal Neutrons 78

[illegible], Yu.F., K.A. Petrzhak, and M.A. Bak. Cadmium Ratios for Ag^{107} and [illegible] 84

Bak, M.A., K.A. Petrzhak, and Yu.F. Romanov. Analysis of a Neutron Field of Uniform Density 87

Romanov, Yu.F., M.A. Bak, K.A. Petrzhak, and Yu.F. Romanov. Neutron Energy Distribution in the Water Surrounding the Source 91

Romanov, Yu.F., K.A. Petrzhak, M.A. Bak. Measurement of Diffusion Length of Thermal Neutrons in Water 10[illegible]

Bak, M.A., [illegible], V.I. Matviyenko, K.A. Petrzhak, and Yu.F. Romanov. Radon Neutron Sources 107

Romanov, Yu.F. Measuring the Number of Neutrons Emitted by a Radium-Beryllium Source 113

Bak, M.A., [illegible], [illegible], [illegible], K.A. Petrzhak, and [illegible]. Determining Neutron Outlets From Ra + Be, [illegible] + Be, [illegible] + B, and Po + Be Sources 12[illegible]

[illegible], [illegible] Determining the Correction for Calorimeter [illegible] Measurements of [illegible] Preparations 1[illegible]

[illegible] The Role of Physical and Chemical Processes in [illegible] of Radioactive [illegible] 1[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

ARTEM'YEV, Yu.M.; PROTOPOPOV, A.N.; SHIRYAYEV, B.M.

Gamma rays accompanying the thermal-neutron fission of U^{235}. Trudy Radiev.inst.AN SSSR 9:78-83 '59. (MIRA 14:6)
(Uranium) (Gamma rays)

21(7)

SOV/56-36-3-63/71

AUTHORS: Protopopov, A. N., Shiryayev, B. M.

TITLE: γ-Rays, Accompanying U^{238} Fission by Neutrons of the Energy 2.8 and 14.7 Mev (γ-luchi, soprovozhdayushchiye deleniye U^{238} neytronami energii 2,8 i 14,7 MeV)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, Nr 3, pp 954 - 955 (USSR)

ABSTRACT: Determination of the average total energy of γ-quanta originating from U^{238}-fission by thermal neutrons gives approximately 7.5 Mev (Ref 1) and for the spontaneous fission of Cf^{252} 8.2 Mev was obtained (Ref 2). Experimentally it was found that for the U^{235} fission by thermal neutrons and by 2.8 and 14.7 Mev neutrons the values obtained for the total γ-energy within the limits of ± 15% coincide (Ref 3). The purpose of the present paper ("Letter to the Editor") was to obtain data concerning the division of energy by γ-rays in U^{238}-fission by fast neutrons. The same method and apparatus were used as in the case of reference 3; the γ-spectra of U^{238}-fission by fast neutrons and those of U^{235}-fission by thermal neutrons were compared; γ-counting was carried out by means

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of a scintillation counter with NaJ(Tl) crystal connected in coincidence with a single-layer fission chamber. The chamber contained, with conditions otherwise being the same, a U^{235}-target (1.8 mg/cm^2) and also a U^{238}-target (2.2 mg/cm^2). The results obtained by these investigations are shown by a diagram showing the dependence of the ratio coincidence/fissions on the impulse amplitude in v. Measuring values are along a straight line which declines in the direction of growing amplitudes. The ratio of coincidences between γ-quanta and fragments in the case of U^{238}-fission by 2.8 and 14.7 Mev neutrons and the number of coincidences in the case of U^{235}-fission by thermal neutrons is given as amounting to 1.03±0.03 and 1.00± 0.02 respectively. The authors again arrive at the conclusion that for U^{238}-fission by 2.8 and 14.7 Mev neutrons the average total energy of γ-quanta agrees up to ± 15% with the values obtained for U^{235}-fission by thermal neutrons. A comparison with the results obtained by other papers shows that 1) similar values are obtained per fission for all investigated nuclei (U^{235},U^{238},Cf^{252})

γ-Rays, Accompanying U^{238} Fission by Neutrons of the Energy 2.8 and 14.7 Mev SOV/56-36-3-63/71

for the average total energy of γ-quanta per fission process and 2) the γ-quanta energy depends only slightly on the excitation energy of the compound nucleus before fission. The authors in conclusion thank Yu. I. Belyanin for supervising the accelerator during the experiments. There are 1 figure and 3 references, 2 of which are Soviet.

ASSOCIATION: Radiyevyy institut Akademii nauk SSSR (Radium Institute of the Academy of Sciences, USSR)

SUBMITTED: December 6, 1958

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ARTEM'YEV, Yu.M.; BARANOV, I.A.; BLINOV, M.V.; KUZNETSOV, M.I.; PROTOPOPOV, A.N.; SELITSKIY, Yu.A.; SOLOV'YEV, S.M.; SHIRYAYEV, B.M.; EYSMONT, V.P.

Low voltage neutron generator. Trudy Radiev.inst.AN SSSR 9:134-140 '59. (MIRA 14:6)

(Neutrons)

24.6720 (1138, 1482, 1158)

S/048/61/025/001/026/031
B029/B063

AUTHOR: Shiryayev, B. M.

TITLE: Determination of the mean lifetime of excited states of U^{235} fission fragments

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, v. 25, no. 1, 1961, 143-144

TEXT: The mean lifetime of excited states with respect to the emission of gamma quanta has been determined by measuring the solid angles calculated from excited fragments. According to V. V. Sklyarevskiy, D. Ye. Fomenko, Ye. P. Stepanov (Ref. 2), the main fraction of gamma radiation corresponds to a fragment lifetime of $(0.5 - 2.5)\cdot 10^{-9}$ sec. The aforementioned authors, as well as A. B. Smith, P. R. Fields, and A. M. Friedman have come to the conclusion that the emission has, above all, a dipole character. The ionization chamber shown in the accompanying figure was placed in a current of thermal neutrons. The coinciding pulses originating from gamma quanta and ionization chamber were determined. When the distance between the layer of fissile material and the

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collecting electrode of the ionization chamber is increased, the number of coincidences decreases owing to the emission of gamma quanta from fragments traveling over a large distance, i.e., owing to the decrease of the solid angle calculated from the fragments to the crystal. The decrease occurs during the emission of gamma quanta from fragments. The relation

$$\tau = \left(\frac{2N}{N_{\gamma}\xi} - \Omega\right)/vf(r)$$

holds for the mean lifetime. f(r) is a function of the distance between the layer of fissile material and the collecting electrode of the ionization chamber; N is the number of coincidences corresponding to one fission event; N_{γ} is the number of gamma quanta emitted in one fission event; ξ is the efficiency of the gamma counter; v is the mean fragment velocity; and Ω is the solid angle calculated from the layer of fissile material to the gamma counter. The gamma quanta were recorded by a scintillation counter with an NaI(Tl) crystal, and the fragments were counted by a single-layer ionization chamber. A layer of uranium oxide with 97.8% U^{235} was applied to the chamber bottom by means of an

Determination of the mean lifetime ...

89260
S/048/61/025/001/026/031
B029/B063

Al backing. The values of N_γ and ξ found by Yu. M. Artem'yev, A. N. Protopopov, and B. M. Shiryayev were used to calculate τ. The solid angles were calculated by methods of K. A. Petrzhak and K. A. Bak (Ref., 4). The values of the fragment velocities were taken from measurements of R. B. Leachman (Ref. 5). It has thus been found that the mean lifetime of such fragments with respect to the emission of gamma quanta is $(0.5 - 2.0)\cdot10^{-9}$ sec. This value is in good agreement with the results obtained by other methods. According to this experimental lifetime, the gamma quanta are chiefly emitted from excited fragments after evaporation of neutrons. Since several facts contradict the usually accepted theory of neutron evaporation, a search for shorter emission periods of gamma quanta during fission would be of particular interest. A. N. Protopopov and V. P. Eysmont are thanked for discussions. This is the reproduction of a lecture read at the Tenth All-Union Conference on Nuclear Spectroscopy, Moscow, January 19-27, 1960. There are 1 figure and 5 references: 3 Soviet-bloc and 2 non-Soviet-bloc.

ASSOCIATION: Radiyevyy institut im. B. G. Khlopina Akademii nauk SSSR (Radium Institute imeni B. G. Khlopin, Academy of Sciences USSR)

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Determination of the mean lifetime ...

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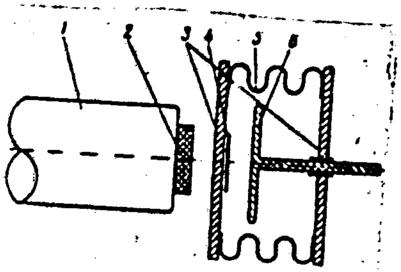
B029/B063

Legend to Fig.:

1) Photoelectronic multiplier; 2) NaI(Tl) crystal; 3) housing of the ionization chamber; 4) uranium-oxide layer; 5) bellows; 6) collecting electrode of the ionization chamber.



Card 4/4

SEMENOV, G.A.; TURKINA, M.Ya.; SHIRYEYEV, B.V.

Istopic exchange during the decarboxylation of deuterated benzoic acid. Zhur. ob. khim. 31 no. 2:641-644 F '61.

(MIRA 14:2)

(Benzoic acid) (Deuterium)

43364
S/056/62/043/005/012/058
B102/B104

AUTHORS: Blinov, M. V., Kazarinov, N. M., Protopopov, A. N., Shiryayev, B. M.

TITLE: The angular anisotropy of γ-quanta accompanying the U^{235} fission

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 5(11), 1962, 1644-1648

TEXT: The angular anisotropy of γ-quanta emitted in thermal-neutron induced fission of U^{235} was measured under optimum geometry. The γ-quantum detector, a stilbene crystal and an ФЭУ-33 (FEU-33) photomultiplier, was lead-shielded (10 cm) in order to reduce the background effect. The effects of prompt neutrons were eliminated by a multichannel time analyzer (resolution $3-5\cdot10^{-9}$ sec). In previous measurements made with a gas scintillation counter and a copper collimator the anisotropy was found to be 25-30%. Control measurements showed that this high value can be somewhat reduced if account is taken of the γ-quantum

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The angular anisotropy of ...

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B102/B104

absorption both of the collimator and of the Al backing of the target. In the following experiments these effects were eliminated with the help of a special arrangement (Fig. 1). The fragments were detected by the flashes in a thin scintillation foil. The time distributions of the gamma counts taken at 0 and 90^{0} angles to the chamber axis show a peak with a half-width of $8\cdot10^{-9}$sec. Records gave $19.5\cdot10^{6}$ fission events (13,063 quanta) under 0^{0} and $19.8\cdot10^{6}$ (12,069 quanta) under 90^{0} to the axis. Thus after all corrections the anisotropy amounts to $\frac{W(0)-W(90)}{W(90)} = (12\pm2)\%$, i. e. the γ-emission in the direction of flight of fragments is higher by $(12\pm2)\%$ than perpendicular thereto. Assuming it is the fragment's angular momentum that causes the anisotropy its value can be estimated. For $L \geqslant 2$, $j \sim 25 - 30$, for $L=3$, $j \sim 15 - 20$. The measurements described have been made at the reactor of the FTI AN SSSR. There are 2 figures.

SUBMITTED: June 18, 1962

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The angular anisotropy of ...

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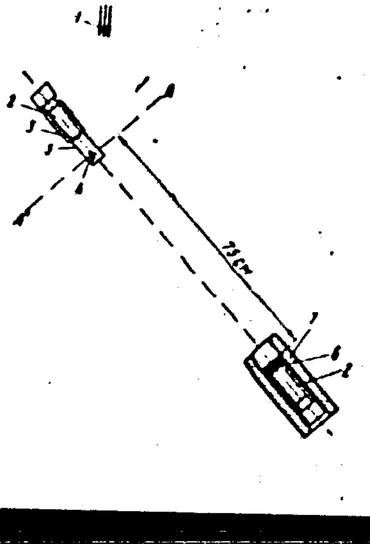
B102/B104

Fig. 1. Apparatus for measuring the γ-ray intensity along the chamber axis. Legend: 1 - neutron beam; 2 - FEU-33, 3 - Terphenyl film, 4-uranium oxide layer (97.9% U^{235}), 5 - vacuum chamber, 6 - stilbene crystal, 7 - lead shield.



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44233

S/056/62/043/006/031/067
B125/B102

24.6640

AUTHOR: Shiryayev, B. M.

TITLE: The kinetic energy dispersion of fragments in the fission of heavy nuclei

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 6 (12), 1962, 2150-2152

TEXT: Calculations are made of how energy fluctuations and the rotation energy of fragments affect the dispersion of total kinetic energy. The half-width of the total kinetic fragment energy distributions is $\Delta E_{kin} = \left[(\Delta E_Q)^2 + (\Delta E_{rot})^2 + (\Delta E_n)^2 + (\Delta E_Z)^2\right]^{1/2} \approx 20$ Mev. ΔE_Q denotes the spread of the kinetic fragment energy due to fluctuation of the mean distance between the fragments at the instant of fission, ΔE_n denotes the half-width due to the neutron recoil, ΔE_Z denotes the half-width due to charge fluctuation of the fragments. From the rotation energy $E_{rot} = \hbar^2 j^2/J$ it follows that $\Delta E_{rot} = 2\hbar^2 J^{-1} j \Delta j$ and for

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5(2)

SOV/54-59-2-23/24

AUTHORS: Yefremov, G. V., Kim Gun On, Shiryayev, B. V.

TITLE: Co-precipitation of Thallium With Copper and Mercury Iodides (Soosazhdeniye talliya s iodidami medi i rtuti)

PERIODICAL: Vestnik Leningradskogo universiteta. Seriya fiziki i khimii, 1959, Nr 2, pp 152-155 (USSR)

ABSTRACT: The co-precipitation proved to be one of the most promising enrichment or concentration methods of separating thallium from materials with a very low content of thallium. Poorly soluble metal iodides are used as collectors for the thallium. Similar investigations with copper and silver iodides are indicated in publications (Refs 1-2). Investigations with copper and mercury iodides have not yet been carried out. This method tested in this paper with the monovalent metal iodides of the mentioned metals, proved to be particularly suitable for investigations of mercury-containing materials on one hand; on the other hand, the presence of copper does not disturb the final determination of thallium by the colorimetric methyl violet method. In order to prevent the formation of free iodine in the copper iodide solution, the presence of which disturbs the precipitation of

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Co-precipitation of Thallium With Copper and Mercury Iodides

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thallium, a reducer was introduced in the form of fresh-made sulphuric acid. To investigate the optimum conditions for a complete precipitation of thallium, the copper iodide content and the pH-value of the solution were varied in a solution volume of 25 ml at 18° and a thallium content of 50 γ Th. The results of this investigation are compiled in a table. The optimum conditions were attained at a pH-value of 2.9 and a thallium-copper ratio of 1:200. At an increase in temperature, the precipitation of thallium became worse. Investigations with thinner solutions also yielded worse results. The precipitation mechanism is considered as a surface adsorption of the thallium on the copper iodide. Besides, the thallium is determined in some natural compounds by means of this method. For the precipitation of thallium with mercury iodide, an excess of potassium iodide had to be introduced to stabilize the Hg_2J_2; in this way, it was possible to precipitate 95% of the thallium from 20 ml of solution (0.001 mol/l KJ excess) with 25 γ thallium at a pH-value of 3.3 - 4 and a mercury-thallium ratio of 1:1300. A further excess in KJ reduced the

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Co-precipitation of Thallium With Copper and Mercury Iodides

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yield. Tests with a boiling solution yielded worse results. The precipitation mechanism Hg_2J_2 - Th is also considered as a surface adsorption. There are 1 table and 5 Soviet references.

SUBMITTED: December 22, 1958

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YEFREMOV, G.V.; KIM GUN ON; SHIRYAYEV, B.V.

Coprecipitation of thallium with copper and mercury iodides. Vest. LGU 14 no.10:152-155 '59.
(Thallium) (Iodides) (MIRA 12:6)

1. [illegible], [illegible]

2. USSR (600)

4. Kuybyshev Hydroelectric Power Station - Telecommunication

7. Communication workers at the construction of the Kuybyshev hydroelectric power station. Sov. sviaz., No. 2, 1953.

9. Monthly List of Russian Accessions, Library of Congress, May 1953. Unclassified.

USSR/Diseases of Farm Animals - Diseases Caused by Bacteria and Fungi. R.

Abs Jour : Ref Zhur - Biol., No 6, 1958, 26236

Author : Shiryayev, D.T., Shapovalov, A.T.

Inst : Rostov-on-the-Don Governmental Scientific Research Antiplague Institute.

Title : Examinations of Antelopes (Saiga tatarica) in the Northeast Prekaspian Area for Brucellosis Infection.

Orig Pub : Tr. Rostovsk.-n.-D. gos. n.-i. protivochumn. in-ta, 1956, 10, 432-434

Abstract : When the blood of antelopes was serologically examined for brucellosis (Rayt and Khedl'son reactions), a certain percentage of positively reacting animals was found. Attempts to obtain a brucellosis culture from such antelopes did not produce positive results.

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MIRONOV, N.P.; TINKER, I.S.; SHISHKIN, A.K.; SHIRANOVICH, P.I.; VAL'KOV, B.G.; IVANOV, I.Kh.; KARPUZIDI, K.S.; KLIMCHENKO, I.Z.; SHIRYAYEV, D.T.

Contemporary status of the plague focus in the northwestern Caspian Sea region and problems in its further study. Sbor. nauch. rab. Elist. protivochum. sta. no. 1:19-29 '59.

(CASPIAN SEA REGION—PLAGUE) (MIRA 13:10)

LEVI, M.I.; ZININ, P.I.; SHTEL'MAN, A.I.; SHIRYAYEV, D.T.; MIRONOV, N.P.; CHIKRIZOV, F.D.

Hereditary resistance to plague in Meriones meridianus. Bul. eksp. biol. i med. 56 no.7:75-79 Jl'63 (MIRA 17:3)

1. Iz Rostovskogo-na-Donu nauchno-issledovatel'skogo protivochumnogo instituta i Astrakhanskoy protivochumnoy stantsii. Predstavlena deystvitel'nym chlenom AMN SSSR N.N. Zhukovym-Verezhnikovym.

L 6836-65 EWT(1)/EWA(b) AMD/Pa-4 JK

ACCESSION NR: AP4039935

S/0016/64/000/005/0050/0054

AUTHOR: Shiryayev, D. T.; Tokarev, S. A.; Shevchenko, S. P.

46

[illegible] of antibody neutralization reaction for retrospective [illegible]
[illegible] tularemia epi[illegible]

45

[illegible] mikrobiologii, epidemiologii i immunobiologii, no. 5,
[illegible], 50-54

41

TOPIC TAGS: tularemia, epizootiology, antibody neutralization reaction, bone extract, organ extract, tularemia retrospective diagnosis

ABSTRACT: An intensive tularemia epizootic killed large numbers of rabbits and smaller rodents on Biryuchy Island in the Kherson region in the fall of 1961 and causative agent cultures were isolated from various rodents and ticks by the local laboratory. In May 1962 the preserved remains of field mice which had died of tularemia were found in many burrows during an epizootological investigation of the island. In the present study, bones, dried organs and tissues of 27 field mouse nests were investigated by antibody neutralization reac-

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ACCESSION NR: AP4039935

tions to find whether tularemia can be diagnosed retrospectively. Thirty-nine extracts were prepared from the bones, organs, tissues, and nest masses. Sheep erythrocytes sensitized with different amounts of tularemia antigen according to Levy and Momot's method [illegible] neutralization reactions. A specific antitularemia [illegible] agglutination titer of 1:2000, prepared by the Odessa [illegible] Epidemiology and Microbiology, was inactivated for 30 [illegible] neutralization reactions. Findings [illegible] presence of a tularemia antigen in extracts of bone, [illegible] and nest mass can be detected by antibody neutralization [illegible] were found for highly diluted organ and [illegible] were [illegible] found for comparably diluted bone [illegible] apparently require a greater quantity of antigen for [illegible] neutralization. The specificity of the latter reaction [illegible] experiments [illegible] sensitive and specific in [illegible] Orig. art. has: 2 tables.

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L 6836-65

ACCESSION NR: AP4039935

ASSOCIATION: **Rostovskiy-na-Donu nauchno-issledovatel'skiy protivochumnyy institut** (Rostov-on-Don Scientific-Research Antiplague Institute)

[illegible] Nov62 ENCL: 00

[illegible]: 003 OTHER: 000 SUB CODE: LS

Card 3/3

BESSALOV, V.S.; PANASOVSKIY, V.A.; KOROL', A.G.; TEREMENKO, L.A.; BONDARENKO, I.F.; TIMOFEYEV, M.A., SHIRYAYEV, D.T.

Outbreak of tularemia on Biryuchiy Island. Zhur.mikrobiol.,epid. i immun. 41 no.5:54-57 My '64. (MIRA 18:2)

1. Khersonskaya oblastnaya sanitarno-epidemiologicheskaya stantsiya i Rostovskiy protivochumnyy institut.

MIRONOV, N.P., prof.; KARPUZIDI, K.S.; KLIMENKO, I.Z.; KOLESNIKOV, I.M.; LISITSYN, A.A.; NEL'ZINA, Ye.N.; SHIRANOVICH, P.I.; SHIRYAYEV, D.T.; YAKOVLEV, M.G.; NIKOLAYEV, I.M., red.

[Sources and carriers of plague and tularemia] Istochniki i perenoschiki chumy i tuliaremii. Moskva, Meditsina, 1965. 194 p. (MIRA 18:4)

1. Rostovskiy-na-Donu nauchno-issledovatel'skiy protivochumnyy institut (for all except Nikolayev).

ACC NR: AP6021095 (A,N) SOURCE CODE: UR/0358/66/035/003/0305/0309

AUTHOR: Shiryayev, D. T.; Shevchenko, S. F.; Tokarev, S. A.; Orekhova, I. M.

ORG: State Scientific Research Antiplague Institute, Rostov-na-Donu (Gosudarstvennyy nauchno-issledovatel'skiy protivochumnyy institut)

TITLE: Experimental studies of ticks as tularemia vectors

SOURCE: Meditsinskaya parazitologiya i parazitarnyye bolezni, v. 35, no. 3, 1966, 305-309

TOPIC TAGS: human disease, animal disease, disease vector, tick, orthopod vector, tularemia, animal parasite

ABSTRACT:

The tick species *Hyalomma plumbeum plumbeum* and *Haemaphysalis punctata* infected with tularemia occur in nature. The authors infected these species with tularemia under laboratory conditions. The ticks retained the infective agent throughout all stages of development. Nymphs of *H. plumbeum* infected animals with tularemia over an 82-day period, suggesting that these ticks, which are prevalent in the southern steppes, are important in maintaining natural tularemia foci. Orig. art. has: 3 tables.

[W.A. 50; CBE No. 10]

SUB CODE: 06/ SUBM DATE: 04Jun63/ ORIG REF: 015/

Card 1/1 UDC: 616.455-022.39:595.42+576.895.42

PUSHKIN, Aleksandr Ivanovich; SHIRYAYEV, Dmitriy Vasil'yevich;
MYASHIKOV, A.A., red.; FILIMONOVA, A.I., red. izd-va;
GRECHISHCHEVA, V.I., tekhn. red.

[Theory and practice of paper dyeing]Teoriia i praktika krasheniia bumagi. Moskva, Goslesbumizdat, 1962. 266 p.
(MIRA 15:10)

(Dyes and dyeing—Paper)

KOMAROVSKIY, A.N.; KURYSHEV, V.S.; LAVROV, A.V.; PAVLOV, P.I.;
SHIRYAYEV, F.Z.

The buildings, foundations and protective installations of an accelerator with rigid focusing for an energy of 7.0 Gev. Prom. stroi. 41 no.2:31-34 F '63. (MIRA 16:3)
(Particle accelerators—Design and construction)

18

L 43080-65 EWT(m)/ EPA(w)-2/EWA(m)-2 Pab-10/Pt-7 IJP(c) JT/GS

ACCESSION NR: AT5007918 S/0000/64/000/000/0197/0201 58 54 B-1

AUTHOR: Vladimirskiy, V. V.; Gol'din, L. L.; Koshkarev, D. G.; Tarasov, Ye. K.; Yakovlev, B. M.; Gustov, G. K.; Komar, Ye. G.; Kulikov, V. V.; Malyshev, I. F.; Monoszon, N. A.; Popkovich, A. V.; Stolov, A. M.; Strel'tsov, N. S.; Titov, V. A.; Vodop'yanov, F. A.; Kuz'min, A. A.; Kuz'min, V. F.; Mints, A. L.; Rubchinskiy, S. M.; Uvarov, V. A.; Zhadanov, V. M.; Filaretov, S. G.; Shiryayev, F. Z.

TITLE: 60-70 Gev Proton Synchrotron 19

SOURCE: International Conference on High Energy Accelerators. Dubna, 1963. Trudy. Moscow, Atomizdat, 1964, 197-201

TOPIC TAGS: high energy accelerator, synchrotron

ABSTRACT: A 60-70 Gev proton synchrotron with strong focusing is being constructed not far from Serpukhov, as has been reported earlier (e.g. "Research Institute for Electro-Physical Equipment, Leningrad," in Proceedings of the International Conference on High Energy Accelerators and Instrumentation (CERN, 1959), p. 373). The present report describes parameter changes and improvements in precision structural characteristics of the accelerator, and the present state of construction in mid-1963. The parameters of the magnet are presented in a table. A small change in the original plans permitted an increase in the length of a part of the free

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L 43038-65

ACCESSION NR: AT5007918

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sections, some of which are utilized for input and exit of beams. The super-period design is described. The lengthened sections were obtained as a consequence of shortening the focusing and defocusing blocks by 112 cm. The focusing properties of the magnetic channel were diminished consequently, but very little; and the limiting energy was lowered by 2-3 Gev. The construction of the magnet is described. Each of the magnetic blocks is divided lengthwise into 5 sub-blocks which are enveloped by the common winding. These sub-blocks consist of laminar two-millimeter silicon steel. These steel sheets were stamped out without subsequent mechanical working, and were subjected to sorting and intermixing in order to smooth out their magnetic characteristics. The sub-blocks are constricted by lateral welded plates without adhesion. Provision was made for windings on the poles in order to correct for pole nonlinearity and for variations in the drop reading. These windings make it possible to introduce artificial quadratic (square) nonlinearity that changes the dependence of the frequency of transverse oscillations during a pulse. In order to correct for straying of the residual field, provision has been made for windings on the yoke in series with the main winding. The sub-blocks must undergo calibration on a magnet stand in order to make correcting systems more precise and to determine the most convenient disposition of the sub-blocks along the ring. The winding of the electromagnet is made of aluminum busbars with hollow cores for cooling water. The length of the busbar is so selected that there would be no

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L 43088-65

ACCESSION NR: AT5007918

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welded joints inside the coils. The winding consists of 4 sections, two of which are disposed on the upper pole and two on the lower. The most important characteristics of the electromagnet and power supply system are described in a table. Also described are the vacuum chamber and accelerating field (obtained by 53 paired resonators with ferrite rings, which operate at the 30-th harmonic of revolution and give accelerating potential of 350 kilovolts). The ring tunnel and the general arrangement of the accelerator are shown in figures and described. The building for the injector and portions of the ring tunnel from the injector to the experimental room have been completed in the main and are ready for installation of equipment. This room, in the form of a single-aisle building without internal supports, permits one to work on beams brought into the inner and outer sides. A 90-meter arch covers this room, whose overall length is 150 meters. Provisions have been made for a second experimental room at the southwest part of the ring. Orig. has 4 figures, 2 tables.

ASSOCIATION: Institute teoreticheskoy i eksperimental'noy fiziki GKAE SSSR (Institute of Theoretical and Experimental Physics, GKAE SSSR). (2) Nauchno-issledovatel'skiy institut elektrofizicheskoy apparatury imeni D. V. Yefremova GKAE SSSR (Scientific Research Institute of Electrophysical Apparatus, GKAE SSSR).

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L 43088-65

ACCESSION NR: AT5007918

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(3) Radiotekhnicheskiy institute AN SSSR (Radio Engineering Institute, Academy of Sciences SSSR). (4) Gosudarstvennyy proyektnyy institut GKAE SSSR (State Planning Institute, GKAE SSSR).

SUBMITTED: 26May64 ENCL: 00 SUB CODE: EE, NP

NO REF SOV: 002 OTHER: 001

am

Card 4/4

SHIRYAYEV, G.A., inzh.; GILLER, E.S., inzh.

Standardization of main structures in coal mining enterprises. Shakht. stroi. no.12:7-10 D '57. (MIRA 11:1)

1. Institut TSentrogiproshakhtostroy.
(Mine buildings)

RABKIN, Semen L'vovich; MURATOV, Igor' Vladimirovich; SHIRYAYEV, Grigoriy Anatol'yevich; SLAVIN, D.S., otv.red.; PETRAKOVA, Ye.P., red. izd-va; BERESLAVSKAYA, L.Sh., tekhn.red.

[Sectional reinforced concrete constructions for mine support] Sbornye zhelezobetonnye konstruktsii shakhtnoi krepi. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po gornomu delu, 1959. 227 p. (MIRA 12:12)

(Mine timbering) (Precast concrete construction)

BALABACHAN, Ya.I., prof.; SHIRYAYEV, G.A., inzh.

Sectional supports made of "armotsement." Shakht.stroi. no.3: 23-25 Mr '59. (MIRA 12:4)
(Reinforced concrete construction) (Mine timbering)

SHIRYAYEV, G.A.

General building materials production base in Semipalatinsk.
Prom. stroi 38 no.11:11-14 '60. (MIRA 13:10)
(Semipalatinsk--Building materials industry)

SHIRYAYEV, G.A., inzh.

Hard-pressed reed is a new material for the manufacture of structural elements. Stroi.mat. 8 no.3:7-9 Mr '62. (MIRA 15:8)

(Reed products) (Building materials)

SHIRYAYEV, G.I.

Dies for bending spring hooks. Mashinostroitel' no.4:28-29 Ap '60. (MIRA 13:6)

(Dies (Metalworking))

SHIRYAYEV, G.N.

Automatic control for crane machinery. Put'iput.khoz. 5 no.5:24-25
My '61. (MIRA 14:6)

1. Mekhanik puteukladchika PMS-72, st. Takir, Ashkhabadskoy dorogi.
(Cranes, derricks, etc.) (Automatic control)

LYUTROVNIK, L.Ya.; SHIRYAYEV, G.V., mostovoy master

Drainage construction machine in the division. Put' i put.khoz. 8 no.12:24 '64. (MIRA 18:1)

1. Nachal'nik Orekhovskov distantsii puti Moskovskov dorogi (for Lyutrovnik). 2. Orekhovskaya distantsiya puti Moskovskoy dorogi (for Shiryayev).

SIDEL'NIKOV, A., general-leytenant zapasa; ZIBEROV, I., general-mayor tankovykh voysk zapasa; SHIRYAYEV, I.; STROILO, I., polkovnik zapasa

"Through the storms" by S.Krivoshein. Reviewed by A.Sidel'nikov and others. Voen.vest. 40 no.4:122-126 Ap '61. (MIRA 14:7)

1. Byvshiy komandir 31-go kavaleriyskogo polka (for Sidel'nikov). 2. Byvshiy nachal'nik shtabe 6-y kavaleriyskoy divizii (for Ziberov). 3. Byvshiy voyennyy komissar 2-y brigady 6-y kavaleriyskoy divizii (for Shiryayev). 4. Byvshiy nachal'nik shtabe 6-y kavaleriyskoy divizii i razvedyvatel'nogo otdela shtaba 1-y Konnoy Armii (for Stroilo).

(Russia--Revolution, 1917-1921--Personal narratives)

(Krivoshein, S.)

LYUBINSKIY, N.I.; SHIRYAYEV, I.N.; KNIZHNIKOV, M.G.; GLADYSHEV, S.S.; KIVER, V.F.; SPARIN, V.I., agronom

Use advanced cultivation practices for sunflowers. Zemledelie 27 no.4:47-51 Ap '65. (MIRA 18:4)

1. Orenburgskaya oblastnaya sel'skokhozyaystvennaya opytnaya stantsiya (for Lyubinskiy). 2. Predsedatel' kolkhoza imeni Kirova, Oktyabr'skogo rayona, Orenburgskoy oblasti (for Shiryayev). 3. Predsedatel' kolkhoza "Pamyat' Il'icha" Dinskogo rayona, Krasnodarskogo kraya (for Knizhnikov). 4. Glavnyy agronom kolkhoza "Pamyat' Il'icha", Dinskogo rayona, Krasnodarskogo kraya (for Gladyshev). 5. Starshiy agronom Pologskogo proizvodstvennogo upravleniya, Zaporozhskoy oblasti (for Kiver).

SHIRYAYEV, I. T.[Shyriaiev, I.T.], inzh.; POGREBITSKIY, R.D.[Pohrebyts'kyi, R.D.], inzh.; KHAZANET, L. L., inzh.

Glass reinforced cement, a new material. Mekh. sil'. hosp. 12 no.10:28-29 O '61. (MIRA 14:11)

(Cement)

BIRYUKOVICH, K.L., kand.tekhn.nauk; BIRYUKOVICH, Yu.L., inzh.; SHIRYAYEV,
I.T., inzh.

Concerning the use of glass cement in the agricultural machinery industry. Trakt.i sel'khozmash. 32 no.4:37 Ap '62.
(MIRA 15:4)

1. Kiyevskiy politekhnicheskiy institut (for K.L.Biryukovich).
2. Institut mekhaniki AN USSR (for Yu.I.Biryukovich).
(Agricultural machinery industry—Equipment and supplies)

MOROZ, B.I.; SHIRYAYEV, I.T.; KHAZANET, L.L.

Automatic drinking bowls without metal pipes. Mashinostroenie no.6:72-74 N-D '62. (MIRA 16:2)

(Farm equipment)

[illegible]

[illegible] mechanized feeding of cattle. [illegible]
[illegible] 89-93 [illegible] '64. [illegible]

KALINKO, M.K.; SHIRYAYEV, I.Ye.

Petroleum and gas resources of northern Siberia. Sov.geol. 1 no.12:69-87 D '58. (MIRA 12:4)

1. Nauchno-issledovatel'skiy institut geologii Arktiki i Vsesoyuznyy nauchno-issledovatel'skiy geologorazvedochnyy neftyanoy institut.

(Siberia--Petroleum geology)
(Siberia--Gas, Natural--Geology)

BORISOV, Aleksandr Aleksandrovich; VASIL'YEV, Viktor Grigor'yevich; GRISHIN, Grigoriy Leont'yevich; IVANOVA, Marta Nikolayevna; L'VOV, Mikhail Sergeyevich; SHIRYAYEV, I.Ye., red.; PERSHINA, Ye.G., vedushchiy red.; FEDOTOVA, I.G., tekhn.red.

[Oil and gas prospecting in Siberia, Kamchatka, and the northeastern U.S.S.R.] Sostoianie i osnovnye napravleniia poiskovo-razvedochnykh rabot na neft' i gaz v Sibiri, na Kamchatke i severo-vostoke SSSR. Pod red. I.E.Shiriaeva. Moskva, Gos. nauchno-tekhn.izd-vo neft. i gorno-toplivnoi lit-ry, 1960. 105 p. (MIRA 13:9)

(Siberia--Petroleum geology)
(Siberia--Gas, Natural--Geology)

SHIRYAYEV, I. Ye.; BLOKHIN, P. A.

Some geological results of regional geophysical studies carried out in Central Asia and the Russian Platform. Sov. geol. 5 no.10:88-99 0 '62. (MIRA 15:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut geofizicheskikh metodov razvedki.

(Russian Platform—Geology)
(Soviet Central Asia—Geology)

SHIRYAYEV, L.

Pilot or a commercial agent? Grazhd.av. 17 no.6:20
Je '60. (MIRA 13:7)

1. Nachal'nik Zapadno-Sibirskogo upravleniya Grazhdanskogo vozdushnogo flota.
(Aeronautics, Commercial--Freight)

SHIRYAYEV, L.

Broad vision and purpose. Grazhd. av. 19 no.3:5-7 Mr '62.
(MIRA 15:5)

1. Nachal'nik Zapadno-Sibirskogo territorial'nogo upravleniya.
(Aeronautics, Commercial--Freight)

Shiryayev, M.

BULGARIA / Chemical Technology. Chemical Products and Their Application. Food Industry. H

Abs Jour: Ref Zhur-Khimiya, No 9, 1959, 33138.

Author : Shiryayev, M.
Inst : Not given.
Title : The Production of Eggplant Caviar Paste in a Vacuum.

Orig Pub: Khranit. prom-st, 1958, 7, No 7, 22-23.

Abstract: The technology of the production of caviar paste by the methods used in the Stalingrad Canned Goods Plant and modified to suit Bulgarian conditions, is described. The cleaned eggplants are treated with vapor (for 10 minutes at 3-4 atm. and a temperature equal to or more than 120°); after crushing, they are boiled in a vacuum apparatus (for 30 minutes) until 9-10% of a dry

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SHIRYAEV, M. F.

Agriculture & Plant & Animal Industry.

"Kirov" Collective Farm strives for a high yield of vegetables. Stalingrad. Obl. kn-vo 1951.

9. MONTHLY LIST OF RUSSIAN ACCESSIONS, Library of Congress, April 1952. Uncl.

[illegible], [illegible] [illegible]

For high outputs in collective farming; from work practice of the Sredne-Akhtuba party organization. Stalingrad. Stalingradskoe knizhnoe izd-vo, 1954. 64p.

SHIRYAYEV, N. A.

USSR/Metals
Steel Titanium
Steel Ingots

Nov 48

"Subsurface Porosity of Titanium Steels," M. I. Zuyev, V. S. Kultygin, V. P. Frantsov, N. A. Shiryayev, Engineers, ElektroStal', 7 pp

"Stal'" No 11

Discusses subsurface porosity of titanium steel ingots, with 13 illustrations of macro- and microstructure. Porosity is caused by molten metal splashing and spattering. Suggests siphon method of teeming into 400-kg ingots on six-mold bottom plates or pouring 1,000-kg ingots through 50-60 mm diameter funnel.

PA 19/49T80

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S/125/61/000/001/008/016
A161/A133

AUTHORS: Vorob'yev, Yu.K., Doronin, V.M., Klyuyev, M.M., Topilin, V.V., Shiryayev, N.A., Voynovskiy, Ye.V., Medovar, B.I., Latash, Yu.V., Maksimovich, B.I.

TITLE: The effect of electro-slag remelting on th quality of chrome-nickel molybdenum ЭИ 847 (EI847) steel

PERIODICAL: Avtomaticheskaya svarka, no. 1, 1961, 52-56

TEXT: The authors present the results of experiments carried out with arc furnace, vacuum furnace, and electro-slag processes. The chemical composition of the EI847 grade steel is (%): 0.10-0.15 C, 14-17 Cr, 14-16 Ni, 2.5-3.5 Mo, 0.45-0.85 Nb, not over 0.8 Si, 0.8 Mn, 0.02 S and 0.03 P. It is used mainly for seamless pierced and rolled tubes, and the ductility at high temperature is of primary importance. The austenitic structure of this steel is not subjected to $\gamma \rightarrow \alpha$ transformation at high cold deformation or any heat treatment. The surplus component is carboni-

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S/125/61/000/001/008/016
A161/A133

The effect of electro-slag remelting ...

tride. Cubic $Cr_{23}C_6$ carbide and the intermetallic $MoFe_2$ phase were revealed along with Nb carbonitride by X-ray analysis after long aging at 600-700°C. Aging for 500-7,000 hours at 550-700° does not cause any tendency to intercrystalline corrosion when EI847 steel is preliminarily hardened. The 100-hour strength limit for hardened EI847 steel is 25 kg/mm^2 at 650°, and 30 kg/mm^2 at 600°. In the tests electro-slag remelting was carried out in a Р-909 (R909) unit, in a 250 mm diameter crystallizer; the consumable electrodes were forged rods 140 mm in diameter, cleaned with emery wheel. No defects of any kind were found in ingots prepared by electro-slag remelting (Fig.2). Ingots produced by arc remelting in the vacuum were nearly as sound. The presence of globular inclusions is apparently due to the high contamination of the initial metal before remelting. The steel produced by electro-slag and vacuum remelting had a higher ductility than steel melted by any arc furnace process (Fig.4); electro-slag remelted steel was less subject to overheating (its ductility remained at same level up to 1,300°C. Conclusions: 1) Purest (from nonmetallic inclusions) EI847 steel melted in arc furnaces was obtained in the process with a fresh charge with rimming and slag deoxidation by aluminum powder, and by employing Ni-Nb alloys, or ferroniobium with a low Si content. This process ensures the best ductility of the steel

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The effect of electro-slag remelting ...

at high and ordinary temperatures. 2) If very high purity is required the EI847 steel must be melted using either the electro-slag or vacuum arc remelting with consumable electrodes. Both these methods result also in the highest technological ductility. 3) Ingots produced with the electro-slag process differ from ordinary ingots by a more dense structure, absence of pipes, loose center structure, segregation and other defects. 4) The ultimate strength of EI847 steel slightly decreases after electro-slag remelting, and the yield limit increases. The higher yield limit is due to a decreased dendritic heterogeneity owing to the particular crystallization conditions in water-cooled copper ingot molds. There are 4 figures.

ASSOCIATION: Ordena Lenina zavod "Elektrostal'" im.I.F.Tevosyana (Order of Lenin "Elektrostal" Plant im.I.F.Tevosyan) - Yu.K. Vorob'yev, V.M. Doronin, M.M. Klyuyev, V.V. Topilin, N.A. Shiryayev, Ye.V. Voynovskiy; Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im.Ye.O.Patona ("Order of the Red Banner of Labor" Electric Welding Institute im.Ye.O.Paton AS UkrSSR) - B.I. Medovar, Yu.V. Latash and B.I. Maksimovich

Card 3/3

SHIRYAYEV, N.A.

S/125/60/000/010/002/015
A161/A133

[illegible]

AUTHORS: Medovar, B.I., Maksimovich, B.I., Latash, Yu.V., Topilin, V.V., Klyuyev, M.M., Shiryayev, N.A.

TITLE: The Effect of Electro-Slag remelting on the Quality of Stainless 0Х18Н9 (0Kh18N9) and 1Х14Н19В3Б (1Kh14N19V3B)(ЭИ651 (EI651)) Steel

PERIODICAL: Avtomaticheskaya svarka, 1960, No. 10, pp. 11-18

TEXT: The article contains information on experiments with electro-slag remelting process. The material used were bars of 0Х18Н9 (0Kh18N9) steel 100 mm in diameter, and ЭИ651 (EI651) steel 65 mm in diameter joined into bundles of three and melted in an ingot mold of 250 mm diameter. Five 500 kg ingots were cast. Two ingots were reforged into a 25x175x515 mm billet, and two into a 95 mm diameter bar; one was investigated as cast. The results of metallographic investigation are presented. There were no streaks, nor non-metallic inclusion accumulations, and the absolute content of slag inclusions was considerably lower than in the initial metal, which was also confirmed by

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S/125/60/000/010/002/015
A161/A133

The Effect of Electro Slag Remelting on the Quality of Stainless ОХ18Н9 (OKh18N9) and 1Х14Н14В3Т (1Kh14N14V3B) (ЭИ851 (EI851)) Steel

electro-chemical solving. The total gas content was twice lower than in the initial metal; the nitrogen and oxygen contents were reduced more than the hydrogen content. Apparently, oxygen is being eliminated in the process with floating oxide inclusions, and nitrogen and hydrogen can separate with bubbles forming on the surface of the growing metal grains. Nitrogen separates from metal easily when the metal contains no components forming stable nitrides (titanium, niobium). Nitrides having a higher melting point and larger volume do not coagulate and stick more easily in interaxial spaces. This explains the different quantity of nitrogen eliminated from the two steel grades. The following conclusions are made: 1) The electro-slag process considerably reduces the gas content and nonmetallic inclusions in both steel grades. 2) It raises the ductility of austenitic stainless steel grade and considerably reduces the anisotropy of mechanical properties. 3) The ductility of the remelted metal at hot deformation temperature is 30-40% higher than that of the initial one. There are 8 figures, 5 tables and 5 Soviet-bloc references.

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S/125/60/000/010/002/015
A161/A133

The Effect of Electro-Slag Remelting on the Quality of Stainless 0Х18Н9 (0Kh18N9) and 1Х14Н19В3Б (1Kh14N19V3B) (ЭИ851 (EI851)) Steel

ASSOCIATIONS: Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im.Ye. O.Patona AN USSR ("Order of the Red Banner of Labor" Electric Welding Institute im.Ye.O.Paton of the UkrSSR Academy of Sciences) (B.I. Medovar, B.I. Maksimovich and Yu.V. Latash); Ordena Lenina elektrometallurgicheskiy zavod "Elektrostal'" im. I.F.Tevosyana ("Order of Lenin" Electro-Metallurgical "Elektrostal'" Plant im.I.F.Tevosyan) (V.V. Topilin, M.M. Klyuyev and N.A. Shiryayev)

X

SUBMITTED: May 5, 1960

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SHIRYAYEV, N.A.

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S/133/61/000/012/004/006
A054/A127

AUTHORS: Vorob'yev, Yu.K.; Voynovskiy, Ye.V.; Doronin, V.M.; Klyuyev, M. M.; Topilin, V.V.; Shiryayev, N.A.

TITLE: The effect of the production technology on the quality of ЭИ847 (EI847) steel

③

PERIODICAL: Stal', no. 12, 1961, 1,108 - 1,112

TEXT: Tests were carried out to establish the optimum technology for
EI847 stainless steel smelted in 5-ton and 20-ton arc furnaces under various
smelting conditions, applying also electroslag remelting and vacuum remelting.
The EI847 steel contained 0.05 - 0.10% C, 14 - 17% Cr, 14 - 16% Ni, 2.5 - 3.5%
Mo, 0.45 - 0.85% Nb, maximum 0.8% Si and Mn, maximum 0.02% S and maximum 0.03%
P. This steel shows sufficient strength and a high ductility up to 700°C. In
the various smelting processes soft iron, fresh ferro-alloys, carbon steel
scrap [У7 - У12 (U7 - U12); 10 - 45], Armco iron, soft low-carbon iron, Н-1
(N-1) nickel, Хр. 00000 (Khr. 00000) and Хр. 0000 (Khr. 0000) ferrochrome, mo-
lybdenum and manganese metal were used. Round 500-kg ingots were cast by bot-
tom casting. To reduce the amount of nonmetallic inclusions in the metal and

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to improve its mechanical properties, the test steel was also subjected to electroslag remelting and vacuum-arc remelting. The former was carried out in the P-909 (R-909) type installation of the "Dneprospetsstal'" Plant with a 250-mm diameter mold under the following conditions:

Slag	АНФ-6 (ANF-6)	А (A)	АНФ-1П (ANF-1P)
Slag composition, %:			
CaF_2	70	40	95
CaO	—	30	5
Al_2O_3	30	30	—
Current density, amp/mm^2	0.20-0.34	0.23-0.29	0.21-0.31
Electric power consumption, kwh/ton	1,115	1,370	1,659
Output, kg/h	122.4	99.0	91.5

The ingots obtained by electroslag remelting are characterized by a compact structure and controlled solidification; the dendrite boundaries are less strongly marked than in ingots smelted under the standard conditions. The vacuum-arc remelting process was carried out in a furnace with a mold-diameter of 375 mm and a residual pressure of 10^{-1} - 10^{-2} mm Hg. 500-kg ingots were used

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as consumable electrodes. This method proved less efficient than electroslag remelting. The ingots subjected to this process have to be roughed before forging, in the same way as the conventional ingots, while this is not necessary for ingots remelted by the electroslag process. The chemical composition of EI847 steel after vacuum remelting only changed in such a way that me silicium, niobium and manganese cinder was formed, whereas after electroslag remelting there is some sulfur and silicium cinder. The silicium content decreased in the various heats by about 0.05 - 0.15%. The niobium-carbon ratio is at least 8 in the steel produced by the various methods tested and electroslag remelting. This ratio ensures a high resistance to intergranular corrosion when checked according to the АМ (AM) method [ГОСТ 6032-58 (GOST 6032-58)]. As to nonmetallic inclusions the purest grade was obtained when smelting a fresh charge with rimming and deoxidizing with aluminum powder under white slag and by adding niobium in the form of a nickel-niobium master alloy or ferro-niobium with a low silicon content, followed by electroslag remelting. The amount of nonmetallic inclusions decreased in this way by a factor of 1.5 - 4. The technological ductility of EI847 steel increased when casting took place under the conditions described above. An additional reduction of the bath at the end of the refining period by metallic calcium increases the amount of brittle silicate

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and globular inclusions, but, at the same time also raises the steel ductility at high temperatures (this is contrary to the general opinion that inclusions lower the steel ductility). The highest degree of ductility in hot deformation (torsion) can be obtained in steel remelted with ANF-1P slag and a test slag containing 30% Al_2O_3, 30% CaO and 40% CaF_2. Vacuum-remelted steel is more ductile at 1,000 - 1,100°C than steel produced by electroslag remelting, at 1,150°C the ductility is about the same for both kinds of steel, while at higher temperatures the ductility of vacuum steels decreases and that of electroslag-remelted steels does not change up to 1,300°C. The electroslag remelting tests were carried out by S.A. Leybenzon, Engineer ("Dneprospetsstal'" Plant) and B. I. Medovar, Doctor of Technical Sciences, Yu.V. Latash, Candidate of Technical Sciences and B.I. Maksimovich, Engineer [Institut elektrosvarki im. Ye.O. Patona (Electric Welding Institute im. Ye.O. Paton)]. There are 5 figures, 4 tables and 3 Soviet-bloc references.

ASSOCIATION: Zavod "Elektrostal'" ("Elektrostal'" Plant)

VOROB'YEV, Yu.K.; DORONIN, V.M.; KLYUYEV, M.M.; TOPILIN, V.V.; SHIRYAYEV, N.A.; VOYNOVSKIY, Ye.V.; MEDOVAR, B.I.; LATASH, Yu.V.; MAKSIMOVICH, B.I.

Effect of electric slag refining on the quality of EI847 chromium-nickel-molybdenum steel. Avtom. svar. 14 no.1:52-56 Ja '61.
(MIRA 14:1)

1, Ordena Lenina zavod "Elektrostal" imeni I.F.Tevosyana (for Vorob'yev, Doronin, Klyuyev, Topilin, Shiryayev, Voynovskiy). 2. Ordena Trudovogo Krasnogo Znameni Institut elektroniki imeni Ye.O.Patona AN USSR (for Medovar, Latash and Maksimovich).
(Chromium-nickel steel—Electrometallurgy)
(Metallurgical plants—Quality control)

Shiryayev, N.A.

(5)

S/765/61/000/000/003/003

AUTHORS: Iodkovskiy, S. A., Novitskiy, V.K., Loboda, A.S., Burylichev, G. I., Kudel'kin, V.P., Topilin, V.V., Shiryayev, N.A., Molev, D.S.

TITLE: The effect of the wall thickness of the mold on the quality of nickel-base-alloy castings.

SOURCE: Slitok i svoystva stali; trudy V konferentsii po fiziko-khimicheskim osnovam proizvodstva stali. Moscow, Izd-vo AN SSSR, 1961, 47-60.

TEXT: The paper describes an experimental investigation intended to improve the quality of large-size gas-turbine components. The investigation is concerned with the fundamental defect of highly alloyed Ni-alloy castings, poured into ordinary molds with a vertical taper of 5% and a b/r ratio of 0.55-0.75, namely the presence of internal fissures of thermal origin. The investigation is directed toward the elimination of one of the two possible causes of internal fissures, namely, the stresses which arise as a result of the great difference in temperature (T) along the cross-section of the casting during solidification and cooling. To counteract this effect, the T gradient along the cross-section of the casting must be reduced. Practical means for this purpose include either the reduction of the heat capacity and the heat conductivity of the mold material, the heat rejection of the external

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The effect of the wall thickness of the mold S/765/61/000/000/C02/003

surface of the mold, or a change of the mass of the mold itself (through the use of molds with a reduced wall thickness). It was found that, for castings of the weight range investigated (50-150 kg), the principal factor that determines the rates of their solidification and cooling appears to be the mass of the mold itself. The thinner mold heats up more rapidly than the ordinary thicker mold, and the T gradients are substantially reduced. The investigation also covered the effect of an external therma insulation layer applied to an ordinary and a thin-walled mold on the macrostructure of the castings and on their rate of cooling. A decrease of the wall thickness of a mold to a b/r ratio of less than 0.30 results in a significant decrease of the mass of the mold, a reduction of the rate of solidification of the casting, a reduction in the T difference between the periphery and the axis of the ingot, and, as an ultimate consequence, in an absence in the casting of any internal thermal fissures. There is no appreciable change in macrostructure, but a casting poured into a thin-walled and thermally-insulated mold is completely free of internal fissures. The experimental thin-walled molds were used in actual production in the pouring of highly-alloyed Ni alloys in castings of 500, 700, and 750 kg, and resulted in the elimination of internal fissures and in a reduction of the number of low-grade rejects as identified by ultrasonic inspection. There are 7 figures and 2 tables; no references.

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(N) L 12141-66 EWT(d)/EWT(m)/EWP(w)/EWP(c)/EWA(d)/EWP(v)/T/EWP(t)/EWP(k)/EWP(z)/ ~~EWP(b)/EWP(1)/ETC(m)~~ MJW/JD/WW

ACC NR: AP6000598 UR/0133/65/000/012/1126/1129

AUTHOR: Shiryayev, N.A.; 44,55 Doronin, V. M. 44,55

ORG: none

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B

TITLE: Improving the macrostructure of ingots of EI961 steel

SOURCE: Stal', no. 12, 1965, 1126-1129

TOPIC TAGS: metal casting, nonmetallic inclusion, metal inspection, x ray analysis/ EI961 steel

ABSTRACT: Ingots of EI961 (1Kh12N2VMF) steel (0.10-0.16% C, ≤0.60% Si, ≤0.60% Mn, 0.030% S, 0.030% P, 10.0-12.5% Cr, 1.5-2.0% W, 1.4-1.8% Ni, 0.35-0.50% Mo, 0.18-0.30% V) tend to display a pronounced axial shrinkage porosity accompanied by clusters of nonmetallic inclusions which leads to the formation of defects -- lamination in forgings, detected by ultrasonic inspection. X-ray structural analysis established that the oxide films coating the metal surface at the sites of lamination represent spinels of the $FeO \cdot Cr_2O_3$ type. Hence, the possibilities for improving the techniques of production of these ingots so as to decontaminate the metal and eliminate axial porosity in ingots have been investigated at the Elektrostal' Plant. Since modifications of the charge-blending and melting regime did not produce the desired effect, attention was centered on the effect of ingot and mold parameters and pouring con-

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UDC: 669.14.018.45:620.191.3

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ACC NR: AP6000598

ditions on the compactness of the axial zone of the ingot. It was thus found that reducing the h/d_{av} (height-to-mean diameter) ratio from 3.22 to 0.59 completely eliminated axial porosity. Increasing the angle of taper K of the ingot also contributes to eliminating axial porosity, but to a smaller degree. Use of thin-walled molds makes it possible to retard the cooling of the ingots and contributes to reducing the degree of development of porosity. A relationship was established between the criterion $h/d_{av} \cdot K$ (where K is angle of taper of the ingot, in %) and the contamination of EI961 steel by nonmetallic inclusions. The lower $h/d_{av} \cdot K$ is, the lower is this contamination. It may be assumed that this rule applies also to other steels (e.g. ball bearing steel). The weight G of the ingot also affects contamination: all other things remaining equal, contamination is smaller in smaller ingots. Thus, the general criterion of ingot quality may be represented by $\phi\, hG/Kd_{av}$, where the coefficient ϕ takes into account the pouring temperature of the metal and its heat conduction, specific heat, viscosity, and surface tension at the interface of the inclusions and liquid phase. Orig. art. has: 4 figures, 3 tables.

SUB CODE: 11, 13/ SUBM DATE: none/ ORIG REF: 000/ OTH REF: 000

HW

Card 2/2

L 09141-67 EWT(m)/EWP(t)/ETI/EWP(k) IJP(c) JD/HW
ACC NR: AP6027290 SOURCE CODE: UR/0133/66/000/008/0717/0719

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AUTHOR: Shiryayev, N. A.

ORG: "Elektrostal'" Plant (Zavod "Elektrostal'")

TITLE: Pouring various grades of titanium alloyed steel 15 21

SOURCE: Stal', no. 8, 1966, 717-719

TOPIC TAGS: titanium steel, atmospheric contamination, porosity 15

ABSTRACT: The author studies atmospheric contamination of molten titanium steel. The molten metal reacts with the atmosphere during pouring forming defects under the skin of the ingot. These defects are not eliminated during rolling or forging even with considerable reduction. They are characterized by porosity and account for a 20% loss of metal during snagging. Pouring in a vacuum chamber or chambers filled with argon along with siphon pouring under a layer of liquid slag are among the most efficient means for eliminating titanium porosity in ingots. Another method of eliminating porosity is to surround the metal stream with argon. Orig. art. has: 3 figures.

21

SUB CODE: 11/ SUBM DATE: None

UDC: 669.141.241.4:621.746-

Cord 1/1 nst

SHIRYAYEV, N.P., inzhener.

Improving the tightness of a condenser using sea water. Elek.sta. 24 no.8:
53 Ag '53. (MLRA 6:8)
(Condensers (Steam))

SHIRYAYEV N P

PHASE I BOOK EXPLOITATION 133

Belonovskiy, Anatoliy Sergeyevich, and Menskiy, Boris Mikhaylovich

Avtomatizirovannyy privod s elektromashinnym usilitelem (Automated Drive With an Amplidyne) Moscow, Voyen. izd-vo Min-vo obor. SSSR, 1956. 130 p. No. of copies printed not given.

Ed.: Shiryayev, N. P., Engineer-Captain; Tech. Ed.: Sleptsova, Ye. N.

PURPOSE: The book is intended for persons familiar with the basic laws of electrical engineering. It can, therefore, be utilized by a wide circle of readers.

COVERAGE: The book describes the arrangement, basic properties and principles of operation of low-capacity automated electric drives with an amplidyne. These drives have found wide application in industry and in the military equipment of the Soviet armed forces (p. 3). A description of 13 types of Soviet-produced amplidynes with specifications and a detailed drawing of an EMU5PM type amplidyne is given (pp. 53-60). A polarized relay of the RP-5 type is described and illustrated (pp. 79-82). No personalities are mentioned and only one Soviet reference is given in a footnote (p.131).

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Automated Drive With an Amplidyne

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AVAILABLE: Library of Congress (TK4058 .B43)

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30 July 58

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GRODNEV, I.I.; YEFIMOV, I.Ye.; MARIMONT, L.B.; [redacted], inzhener-kapitan, redaktor; STREL'NIKOVA, M.A., tekhnicheskiy redaktor

[Communication lines; approved by the chief signal office as a textbook for military schools of communication] Linii sviazi; odobreno nachal'nikom voisk sviazi v kachestve uchebnika dlia voennykh uchilishch sviazi. Moskva, Voen. izd-vo M-va obor. SSSR, 1956. 503 p. (MLRA 10:6)

(Telephone lines) (Telegraph lines)

DEKHTYAREV, V.L., inzhener; DRIKER, M.A., inzhener; KALENDER'YAN, V.A.,
inzhener; SHIRYAYEV, N.P., inzhener.

Operation of spray desuperheaters in TP-170-1 high pressure boilers. Elek.sta. 27 no.8:10-15 Ag '56. (MLRA 9:10)

(Boilers--Accessories)

KULIKOV, Ivan Georgiyevich,; SHIRYAYEV, N.P., inzh.-kapitan, red.; MEDNIKOVA, A.N., tekhn. red.

[Batteries] Akkumuliatory. Moskva, Voen. izd-vo M-va obor. SSSR, 1958. 118 p. (MIRA 11:12)
(Storage batteries)

PHASE I BOOK EXPLOITATION SOV/4150

Shiryayev, Nikolay Petrovich

Generatory nesinusoidal'nykh kolebaniy (Nonsinusoidal Oscillators). Moscow, Voyen. izd-vo M-va obor. SSSR, 1960. 55 p. (Series: Radiolokatsionnaya tekhnika) No. of copies printed not given.

Ed.: A. P. Karus', Engineer-Lieutenant Colonel; Tech. Ed.: A. N. Mednikova.

PURPOSE: This booklet is intended for officers operating radar equipment. It may also be useful to the general reader who is interested in the details of separate assemblies and elements of radar stations.

COVERAGE: The booklet describes the principles of multivibrator, and of blocking and linear-voltage oscillator operation. No personalities are mentioned. There are no references.

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ROGINSKIY, Vladimir Yur'yevich; SHIRYAYEV, N.P., inzh.-mayor, red.;
SOLOMONIK, R.L., tekhn.red.

[Electric current converters] Preobrazovateli toka. Moskva,
Voen.izd-vo M-va obor.SSSR, 1960. 118 p.
(MIRA 14:2)

(Electric current converters)

KULIKOV, Ivan Georgiyevich; SHIRYAYEV, N.P., inzh.-mayor, red.; MEDNIKOVA,
A.N., tekhn. red.

[Storage batteries] Akkumuliatory. Izd.2., ispr. i dop. Moskva, Voen. izd-vo M-va obor. SSSR, 1961. 150 p. (MIRA 14:7)

(Storage batteries)

SOBOLEVSKIY, Anatoliy Georgiyevich; SHIRYAYEV, N.P., inzh.-mayor, red.;
KONOVALOVA, Ye.K., tekhn.red.

[Measurements in radio equipment] Izmereniia v radioapparature.
Moskva, Voen. izd-vo M-va obor. SSSR, 1961. 206 p. (MIRA 14:9)
(Electronic apparatus and appliances—Testing)

ALPATOV, Nikolay Ivanovich; SHIRYAYEV, N.P., inzh.-mayor, red.;
KRASAVINA, A.M., tekhn. red.

[Ferrites in electronic circuits]Ferrity v elektronnykh skhemakh. Moskva, Voenizdat, 1962. 109 p. (MIRA 15:10)
(Ferrates) (Cores (Electricity)) (Electronic circuits)

SHIRYAYEV, N.P.

No damage has occurred on the lines. Vest. sviazi 22 no.4:14 Ap '62. (MIRA 15:4)

1. Zamestitel' nachal'nika Michurinskogo lineyno-tekhnicheskogo uzla.
(Telephone--Employees) (Telephone lines)

IGUMNOV, [illegible]; BELYAYEV, N.P., red.

[To far-away worlds] K dalekim miram. Moskva,
Voenizdat, 1965. 139 p. (MIRA 18:8)

SINYAK, V.S.; SHIRYAYEV, N.P., red.; CHAPAYEVA, R.I., tekhn. red.

[Military applications of electronic computers]Voennoe primenenie elektronnykh vychislitel'nykh mashin. Moskva, Voenizdat, 1963. 166 p. (MIRA 16:4)
(Electronic computers)
(Electronics in military engineering)

KUROTKIN, Vladimir Ivanovich, inzh.-podpolkovnik; STERLIGOV, Vladimir Leonidovich, inzh.-mayor; SHIRYAYEV, N.P., inzh.-mayor, red.; KUZ'MIN, I.F., tekhn. [redacted]

[Homing guidance of rockets] Samonavedenie raket. Moskva, Voenizdat, 1963. 87 p. (MIRA 16:9)
(Guided missiles--Guidance systems)

BUBNOV, German Petrovich; SHIRYAYEV, N.P., inzh.-mayor, red.;
KRASAVINA, A.M., [redacted]

[Automatization in antiaircraft defense] Avtomatizatsiia v PVO. Moskva, Voenizdat, 1963. 93 p. (MIRA 16:9)
(Antiaircraft artillery) (Automatic control)